

# Claims

- [c1] A method for bonding a microchannel plate to a multi-layer ceramic body unit comprising the steps of:
- mating surfaces of the microchannel plate (MCP) and the multi-layer ceramic body (MLC) unit are deposited with a thin film using a suitable metal selected for optimum diffusion at elevated temperatures and pressure; the film deposition of the surface of the multi-layer ceramic body is formed having protuberances placed compatible for bonding of the mating surfaces of the MCP and MLC;
  - the metallized MCP and MLC body unit are aligned and placed in a bonding fixture for applying a force sufficient to initiate a diffusion bond between the mating surfaces of the MCP and MLC at a selected elevated temperature; and
  - the bonding fixture is placed in a vacuum heat chamber to accelerate the diffusion bonding process between the MCP and the multi-layer ceramic body unit.
- [c2] The invention of claim 1 wherein the protuberance is formed from a metal selected from the group consisting

of gold, silver, nickel, platinum, and palladium.

- [c3] A microchannel plate (MCP) assembly of the type including a microchannel plate suitable for electron amplification comprises:\_Ref67989250
- a microchannel plate (MCP) having a bonding surface, and a multi-layer ceramic body (MLC) unit having a bonding surface compatible with the bonding surface of the MCP; and
- the bonding surface of the MCP being diffusion bonded to the compatible diffusion bonding surface of the MLC unit.
- [c4] The invention of claim 3 wherein the compatible surface of the MCP has a thin metallic film deposited thereon prior to bonding of the MCP and the MLC unit.
- [c5] The invention of claim 3 wherein the compatible surface of the MLC unit has a metallic protuberance deposited thereon prior to bonding of the MCP and the MLC unit.
- [c6] The invention of claim 5 wherein the metallic protuberance includes a metal selected from the group consisting of gold, silver, copper, nickel platinum and paladium.
- [c7] The invention of claim 3 wherein the microchannel plate body assembly is adapted for use in an image intensifier tube.

